



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,313	07/22/2003	Sujatha Ramanujan	86678NAB	7288
7590	09/13/2005		EXAMINER	
Milton S. Sales Patent Legal Staff Eastman Kodak Company 343 State Street Rochester, NY 14650-2201			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/624,313

Applicant(s)

RAMANUJAN ET AL.

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 54-65 and 96-102 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 96-102 is/are allowed.
- 6) ☒ Claim(s) 54-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Allowable Subject Matter***

1. The indicated allowability of claims 54-65 is withdrawn in view of the newly discovered reference to Suzuki (U.S. 6,776,489). Rejections based on the newly cited reference follow.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
3. Claim 62 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 62 recites the following limitation "said second lens assembly comprises a beam splitter", which appears to be ambiguous in that it indicates that an additional beam splitter, distinct from the one recited in the parent claim 54, is provided within the second lens assembly. Such additional beam splitter is not supported by the current Specification.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 54-61, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanujan et al. (U.S. 6,215,547) in view of Suzuki (U.S. 6,776,489).

Ramanujan et al., an acknowledged prior art, discloses a reflective liquid crystal modulator based printing system, which comprises a control logic processor capable of controlling the operation of said apparatus for printing based on said digital image data (inherent to the printing system for conducting the normal printing operation), an image forming assembly (Fig. 1a) for directing an exposure beam for printing onto said light sensitive medium (160) disposed at said image plane (150), said image forming assembly comprising a light source (30) for providing light exposure energy for imaging onto said light sensitive medium, a first lens assembly (11) for directing said light exposure energy to a spatial light modulator (52), a beam splitter (50), which directs said light exposure energy to said spatial light modulator, said spatial light modulator having a plurality of individual elements capable of altering a polarization state of said light exposure energy to provide an exposure beam for printing, a state of each of said elements controlled by said control logic processor according to said digital image data

(col. 3, line 61 to col. 4, line 7), a second lens assembly (print lens assembly 132) for directing said exposure beam onto said light sensitive medium.

However, Ramanujan et al. fails to teach the temperature profile control apparatus for controlling a temperature profile of said beam splitter, the temperature profile control apparatus being a heat sink, a thermo-electric cooler, a multi-element controller or a localized environmental controller, the apparatus providing a uniform temperature profile and comprising a calculated profile.

Suzuki discloses a polarization beam splitter (111) for use in an image display optical system, the polarization beam splitter being provided with a temperature profile control apparatus for controlling the temperature of the polarization beam splitter to be within the desired value to prevent the occurrence of internal stress in the polarization beam splitter and the resulting birefringence due to heat generation, the temperature profile control apparatus comprising a heat sink or a thermo-electric cooler (e.g., Peltier element 42, Fig. 8), a multi-element temperature controller (e.g., a pair of Peltier elements 131 and 132 disposed on opposite surfaces of the polarization beam splitter 111a), a localized environmental controller (a cooling fan 41 for cooling the portion of the polarization beam splitter closer to the cooling fan as well as the surrounding environment, along with the Peltier element 42 disposed on the opposite surface of the polarization beam split as shown in Fig. 8), providing a uniform temperature profile (the temperature control circuit D constantly monitor the temperature of the polarization beam splitter using the temperature sensors 43 and 44 to keep the temperature of the polarization beam splitter within the desired temperature range) (Fig. 9), comprising a

calculated profile (the characteristic temperature change of the polarization beam splitter on which the radiating member 22 is provided being stored in the temperature control circuit D, as shown in the graph of Fig. 3, which controls the activation of the cooling fan 21 so as to equalize the temperature of the whole polarization beam splitter) (col. 9, lines 22-56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the polarization beam splitter of Ramanujan et al. with the cooling system as taught by Suzuki. The motivation for doing so would have been to prevent the occurrence of internal stress in the polarization beam splitter and the resulting birefringence due to heat generation as suggested by Suzuki.

Ramanujan et al. further teaches:

- Said second lens assembly (print lens assembly 132) comprising a polarizer (134) (Fig. 1),
- Said second lens assembly (132) comprising a zoom lens (e.g., to provide magnified image at the image plane 150) (col. 4, lines 29-42) (col. 13, lines 1-9),
- Said spatial light modulator is movable to at least two distinct locations (see Figs. 12a-d and associated discussions).

6. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanujan et al. in view of Suzuki ('489) as applied to claim 54 above, and further in view of Suzuki (U.S. 5,019,858).

Ramanujan et al., as modified by Suzuki ('489), discloses all the basic limitations of the claimed invention except for the print lens assembly having a turret with at least two lenses.

Suzuki ('858) discloses an image forming apparatus including a print lens assembly having at least two lenses (23a and 23b) mounted on a turret (22), which rotates one of the lenses in and out of the optical axis in accordance with the desired image magnification (col. 3, lines 5-14) (Fig. 1).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the print lens assembly in the device of Ramanujan et al. with a turret as taught by Suzuki ('858). The motivation for doing so would have been to allow proper lens selection for a designated image magnification.

#### ***Allowable Subject Matter***

7. Claims 96-102 are allowed.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM  
PRIMARY EXAMINER

September 7, 2005